Almost all patients with Duchenne muscular dystrophy who do not use ventilatory support die at a young age. Bach and Martinez describe their protocol for this patient population. Patients used up to continuous NIV and mechanically assisted cough to return \( S_{\text{PO}_2} \geq 95\% \) during respiratory infections or as otherwise needed. Continuous NIV along with mechanically assisted cough and oximetry prolonged life and avoided tracheotomy in patients with Duchenne muscular dystrophy. As Boitano and Benditt point out in their editorial, the challenge to the respiratory care community at large is how to implement programs similar to this and achieve similar results.

Numerous ventilators are available that can be used in a disaster setting, but few evaluations of these have been performed. L’Her and Roy compared simple ventilators that could be used in the initial care of patients with respiratory distress. They bench-tested 4 volume-cycled ventilators and 2 pressure-cycled ventilators. The pressure-cycled ventilators did not provide a consistent tidal volume, and under certain conditions the volume delivered is unsafe (too large or too small). But most of the volume-cycled ventilators proved to be technically efficient and reliable. As Branson points out in his editorial, not all ventilators that can be used in a disaster are the same. If fact, the pressure-cycled devices in this study are actually automatic resuscitators and not ventilators per se.

There have been no randomized trials of a breath-actuated nebulizer versus continuous nebulization and/or small-volume constant-output nebulizer in pediatric patients with asthma. It is for this reason that the paper by Sabato et al is important. Although the breath-actuated nebulizer did not reduce the time in the emergency department, it significantly improved clinical asthma score, decreased admissions from the emergency department, and decreased respiratory rate. In their editorial, Ari and Fink explore several questions that arise from this study.

Although inhaled hypertonic saline is an effective therapy for patients with cystic fibrosis, 10% of patients are intolerant of it. Nebulizers combined with PEP splint open the airways and offer a more controlled rate of nebulization. O’Connell et al found that hypertonic saline via PEP nebulizer benefits patients with cystic fibrosis who do not tolerate hypertonic saline via jet nebulizer. As O’Malley points out in her editorial, perhaps combining these therapies will boost adherence in addition to providing benefit. Because of the very small sample size, however, additional study will be necessary before this combination of therapies can be widely adopted.

Assessment of the respiratory muscles’ ability to generate force is important for recognizing respiratory muscle weakness. Dimitriadis et al assessed the reliability of the measurements of maximum inspiratory pressure and maximum expiratory pressure with the MicroRPM portable manometer. They also evaluated the performance of the MicroRPM in the measurement of other respiratory function indices such as the maximum rate of pressure development, the time constant of relaxation, and the maximum relaxation rate. Although the MicroRPM reliably measured maximum inspiratory and expiratory pressures, the additional measurements should be considered with caution.

Although information on the benefits of pulmonary rehabilitation in patients with idiopathic pulmonary fibrosis (IPF) is growing, its effects on important outcomes are lacking. Swigris et al conducted a pilot study of pulmonary rehabilitation in IPF. Although the sample size was small, they were able to conclude that pulmonary rehabilitation improves functional capacity and fatigue in patients with IPF.

Pandemic H1N1 influenza A was a serious health problem around the world during the winter of 2009-2010. Kirakli et al report the survival from severe pandemic H1N1 in urban and rural Turkey. The most common clinical presentation was ALI/ARDS in H1N1 patients who needed intensive care. Living in rural areas might have affected those patients’ access to advanced ICU facilities and early ventilatory support. Failure of noninvasive ventilation, late diagnosis, late antiviral therapy, high APACHE II score, and living in a rural area were associated with mortality.

Dyspnea on exertion can be associated with COPD or heart failure or both. NT-pro-BNP is a marker of cardiac dysfunction, and exercise testing can identify subtle heart abnormalities. Wang et al investigated the cardiac response and NT-pro-BNP kinetics during exercise in patients with COPD. In patients with COPD there was no significant correlation between constant-work exercise time and NT-pro-BNP at rest or during exercise. Thus, in this study, heart failure did not contribute to exercise intolerance in patients with mild to moderate COPD.

Girdhar et al measured systemic inflammation in 30 newly diagnosed adult patients with asthma and assessed the effect of treatment on systemic inflammation. Not surprising, they found that inhaled steroids plus inhaled \( \beta_2 \)-agonist significantly reduced systemic inflammation in patients with asthma.

Vyshedsky et al evaluated the variability of crackle pitch and crackle rate during a single automated-auscultation session with a computerized 16-channel lung-sound analyzer in patients with pneumonia, congestive heart failure, and interstitial pulmonary fibrosis. Neither crackle pitch nor crackle rate changed significantly from breath-to-breath or from one deep-breathing maneuver to another. This suggests that crackle rate might be used to follow the course of cardiopulmonary illnesses such as those evaluated in this study.

The Boussignac CPAP device is used to treat acute pulmonary edema, but data on airway pressure with its use are sparse. This is addressed by Sehlin et al. They found that the device’s pneumatic performance is adequate with low air flow, but with high air flow it did not maintain stable airway pressure. Thus, the Boussignac CPAP system might be less suitable for a patient breathing at a higher frequency.

Natalini et al evaluated whether remifentanil improves breathing pattern or reduces inspiratory effort in patients with acute respiratory failure and tachypnea or rapid shallow breathing. They found that remifentanil improved respiratory pattern and decreased inspiratory muscle effort, but did not affect oxygenation or sedation. Though the acid-base balance did not show clinically relevant changes on average, the possibility that remifentanil might prolong weaning in hypercapnic patients cannot be excluded.

We publish a review this month on technology for enhancing chest auscultation in clinical simulation and another on the use of inspiratory resistance to treat systemic hypotension. The case reports are an unusual presentation of bronchial rupture, conservative treatment of severe tracheal laceration after endotracheal intubation, a ruptured pulmonary hydatid cyst with anaphylactic shock and pneumothorax, and successful extracorporeal membrane oxygenation for respiratory failure in an infant with DiGeorge anomaly following thymus transplantation. The teaching cases are high-grade primary pulmonary B cell lymphoma presenting as a necrotic mass, and pulmonary-vein stenosis mimicking massive pulmonary embolism after radiofrequency ablation for atrial fibrillation.